

Filter Strip

Job Sheet



Definition

Filter strips are areas of herbaceous vegetation situated between cropland, grazing land, forest land, or disturbed land and environmentally sensitive areas. Sensitive areas include streams, lakes, wetlands, and other water bodies and areas susceptible to damage by water-borne pollutants, including sediment, particulate organics, sediment-adsorbed contaminants, and dissolved contaminants.

Purpose

Filter strips function by 1) reducing sediment, particulate organics, and sediment-adsorbed contaminant loadings in runoff; 2) reducing dissolved contaminant loadings in runoff; 3) serving as Zone 3 of a Riparian Forest Buffer (see Practice Standard 391); 4) reducing sediment, particulate organics, and sediment-adsorbed contaminant loadings in surface irrigation tail water; 5) restoring, creating, or enhancing herbaceous habitat for wildlife and



beneficial insects; and 6) maintaining or enhancing watershed functions and values.

Where used

Filter strips are used on cropland, grazing land, forest land, or disturbed land.



Multiple filter strips can be strategically located in a watershed to reduce and slow runoff and increase infiltration and groundwater recharge. A filter strip is designated as a vegetated area to treat runoff and is not part of the adjacent cropland rotation. A strip is designed to filter surface sheet flow. Concentrated flows need to be dispersed before water enters a strip. A filter strip is typically positioned at the down-slope edge of a field or disturbed area. Filter strips are normally only used when adjacent and up-gradient areas have slopes gradients between 1

and 10 percent. To the extent practical, an individual filter strip is placed on the approximate contour, with its upper edge ideally not exceeding a 0.5% gradient (measured perpendicular to the flow length). When establishing a filter strip, consider using vegetation that is tolerant to herbicides used in the adjacent crop rotation.

The filter strip shall be at least 20 feet wide. Maintain a ratio of drainage area to filter strip area of 50:1 or less.

Example:

20' wide filter strip x 1000' long = 20,000 sq. ft.
20,000 sq. ft./43,560 sq. ft./ac = 0.46 ac.
Therefore 0.46 ac. X 50 = 23 ac. of maximum drainage area.

vigorous stand. Exclude livestock and vehicular traffic from filter strips during wet periods of the year to reduce compaction that will limit infiltration. This type of traffic should be excluded at all times to the extent practical. Restoration is required if the filter strip has accumulated sediment to a point that it no longer functions effectively.

Specifications

Site-specific requirements are listed on the specifications sheet. Additional provisions are entered on the job sketch sheet. Specifications are prepared in accordance with the NRCS Field Office Technical Guide. See practice standard Filter Strip, code 393.

Resource Management System

Filter strips are normally established concurrently with other practices as part of a resource management system for a conservation management unit. They should be installed only below areas where sheet and rill erosion have been reduced to an acceptable level and where other practices are in place that slow runoff and contaminant delivery. A filter strip is influenced by but is not considered part of the adjacent crop rotation.

Wildlife

Filter strips can enhance wildlife objectives, depending on the vegetative species used and management practiced. Using native or adapted vegetative species can improve the wildlife values of a filter strip area as well as biodiversity. Avoid mowing during nesting periods.

Operation and Maintenance

Mow filter strips (and harvest if possible) as necessary to encourage dense vegetative growth. If established for wildlife habitat, avoid mowing during the nesting period of ground-nesting wildlife. Control undesirable weed species. Inspect and repair after storm events to fill in gullies, remove flow-disrupting sediment accumulation, reseed disturbed areas, and take other measures to prevent concentrated flow into and across the filter strip. Lime and fertilize to soil test recommendations to maintain a

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Landowner _____ Field number _____

Purpose (check all that apply)	
<input type="checkbox"/> Reduce sediment, particulate organics, and sediment-adsorbed contaminant loadings in runoff	<input type="checkbox"/> Reduce sediment, particulate organics, and sediment-adsorbed contaminant loadings in surface irrigation tailwater
<input type="checkbox"/> Reduce dissolved contaminant loadings in runoff	<input type="checkbox"/> Restore, create, or enhance herbaceous habitat for wildlife and beneficial insects
<input type="checkbox"/> Serve as Zone 3 of a Riparian Forest Buffer (391)	<input type="checkbox"/> Maintain or enhance watershed functions and values

Layout	Strip 1	Strip 2	Strip 3
Strip width (feet)			
Strip length (feet)			
Area in strip (acres)			
Field slope (%)			

Plant Materials (species/cultivars)	Seeding Rate (lbs/acre)	Seeding Date
Strip 1:		
Strip 2:		
Strip 3:		

Soil Amend. And Fertilization	Strip 1	Strip 2	Strip 3
Lime per Soil Test (tons/acre)			
N Fertilizer per Soil Test – (lbs/acre)			
P ₂ O Fertilizer per Soil Test – (lbs/acre)			
K ₂ O Fertilizer per Soil Test – (lbs/acre)			

Site Preparation
<i>Prepare a firm seedbed. Apply lime and fertilizer as indicated by soil testing. Additional requirements:</i>

Planting Methods
<i>Plant grass (and inoculated legume seed) _____ inches deep uniformly over area using approved methods. Establish vegetation according to the specified seeding rate. If necessary, mulch newly seeded area with _____ tons per acre of mulch material. A small grain crop may be needed as a companion crop at the rate of _____ pounds per acre (clip or harvest before it heads out). Additional requirements:</i>

Operation and Maintenance
<i>Maintain original width and length of the filter strip. Harvest, mow, reseed, and fertilize as necessary to maintain plant density and vigorous plant growth. Inspect after major storms, remove trapped sediment, and repair eroding areas. Shut off pesticide sprayers when turning on a filter strip. Reestablish vegetation as needed. Avoid mowing or spraying pesticides during primary nesting season of April 1- July 15. Additional requirements:</i>

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If needed, an aerial view or a side view of the practice can be shown below. Other relevant information, complementary practices and measures, and additional specifications may be included.

Scale 1"=_____ ft. (NA indicates sketch not to scale: grid size=1/2" by 1/2")



Additional Specifications and Notes:

TABLE 1
Commonly used Plants for Temporary Cover

Species	Seeding Rate/Ac	Seed- ing Depth Inches	Seeding Dates		
			North	Central	South
Barley	3 bu	1 in	Sep 1-Oct 30	Sep 1-Oct 30	Sep 1-Oct 30
Oats	4 bu	1 in	Sep 1-Oct 15	Sep 1-Oct 30	Sep 1-Oct 30
Rye	3 bu	1 in	Sep 1- Nov 1	Sep 15-Nov 15	Sep 15-Nov 15
Wheat	3 bu	1 in	Sep 1-Nov 1	Sep 15-Nov 15	Sep 15-Nov 15
Millet, Browntop	40 lbs	½ in	May 1-Aug 1	Apr 1-Aug 15	Apr 1-Aug 15
Sudangrass	40 lbs	¾ in	May 1-Aug 1	Apr 15-Aug 1	Apr 1-Aug 15
Sorghum- Sudan Hybrids	40 lbs	¾ in	May 1-Aug 1	Apr 15-Aug 1	Apr 1-Aug 15

TABLE 2

**Perennial Grasses, Legumes and Mixtures; Seeding Rates; and Planting Dates for
Filter Strip Plantings on Prepared Seedbeds**

Species	Seeding* Rate/Acre	Planting Depth (inches)	<u>Planting Dates and Adapted Area</u>			Remarks
			North	Central	South	
Bahiagrass, Pensacola	40 lbs	1/4 - 1/2	---*	Mar 1-Jul 1	Feb 1-Nov 1**	Low growing, sod forming & slow to establish. Tolerant to droughty, low fertility sites.
Bermudagrass, Common	10 lbs	1/4 -1/2	Apr 1-Jul 15	Mar 15-Jul 15	Mar 1-Jul 15	Quick cover, low growing and sod forming. Intolerant of shade, low fertility & poor management.
Bahiagrass, Pensacola & Common Bermudagrass	27 lbs 7 lbs	1/4-1/2	---	Mar 1-Jul 15	Mar 1-Jul 15	Bermuda will provide quick cover until bahia is established.
Bermudagrass, Sprigs (Forage Type) or Common	30 bu	2-6	Apr 1-Jul 15	Mar 15-Jul 15	Mar 1-Aug 15	All hybrids not adapted for North Alabama. Hybrid Intolerant to low fertility & poor management.
Fescue, Tall	D - 40 lbs*** B - 50 lbs	1/4-1/2	Mar 1-Apr 15 Sep 1-Nov 1	--- Sep 1-Nov 1	--- Sep 15-Nov 15	Good shade tolerance and does well on wet sites. Slow to establish. Does not establish well from spring planting.
Fescue, Tall & White Clover	D-40 lbs, B - 50 lbs D & B - 3 lbs	1/4-1/2	Mar 1-Apr 15 Sep 1-Nov 1	--- Sep 1-Nov 1	--- Sep 15-Nov 15	Good shade tolerance. Does well on wet sites and clay soils of Black Belt.
Old World Bluestem	5 lbs PLS***	0-1/4	---	Black Belt soils Mar 15-Jun-15	---	Kings Ranch or Plains Bluestem. Adapted to chalky black belt soils. Tolerant of poor mgt.

* Bahiagrass planting in North Alabama is limited to counties contiguous to Central Alabama plus St. Clair, Calhoun, & Cleburne.

** Fall planting of bahia should contain 45 pounds of small grain to provide cover during winter months.

*** D - drilled, B - broadcast, and PLS - pure live seed.

**** Tall fescue plantings in South Alabama are limited to land capability subclass w soils. Tall fescue has the potential to become invasive if not properly managed.

Notes: 1. Legume seed will be treated with the inoculant specific for the species of legume.

2. Seeding rates for FSA and State cost share practices shall be the rate specified in the program handbook.

3. If perennial grass mixtures are used then reduce each seeding rate by one-third.

TABLE 3
NATIVE PERENNIAL GRASSES SUITABLE IN
FILTER STRIPS FOR WILDLIFE HABITAT

Native Grass ^{1/2/}	Seeding Rate/Ac ^{3/4/}	Remarks
Big Bluestem	10 lbs PLS ^{5/}	A vigorous, warm season bunchgrass which grows well on most soil types. It does best on moist, well-drained soils, but is more drought tolerant than other warm season native grasses except for little bluestem.
Eastern Gamagrass ^{6/}	2 lbs PLS	Well adapted to deep bottomland soils with good water holding capacity. Will tolerate flooding and somewhat poorly drained soils, but is not adapted to highly alkaline soils.
Indiangrass	12 lbs PLS	A warm season, short, bunchgrass which has good drought tolerance. It is well adapted to medium-heavy to light, sandy textured soils. The seed stalk may be up to 3 feet tall.
Little Bluestem	8 lbs PLS	Warm season bunchgrass growing to a height of 3 feet. It has good drought tolerance and grows well on deep, shallow, sandy, fine textured, and rocky soils.
Switchgrass	5 lbs PLS	A vigorous, tall warm season grass which is well adapted to deep soils with good water holding capacity, including well drained to poorly drained soils. It will tolerate flooding for extended periods and will grow on sandy soils. Low-land types may grow to a height of 6 feet on moist, fertility sites.
Virginia Wildrye	20 lbs. PLS Drilled 30 lbs. PLS Broadcast	A native cool-season perennial grass that is adapted to moderately well drained flood plain sites and is adapted to full or partial sunlight. Adjust soil pH to about 6.0. After establishment apply fertilizer by soil test using small grains as the target plant. Typical planting locations are in the Piedmont and Coastal Plain areas of Alabama.

1/ Adapted Varieties of Native Grasses for Alabama are:
 Big Bluestem - Kaw & Roundtree
 Switchgrass - Alamo & Cave-In-Rock
 Indiangrass - Lometa & Rumsey
 Little Bluestem - Aldous, Cimarron, & Pastura
 Kinchafoonee Virginia wildrye

2/ The planting dates for the adapted areas are:
 North - April 1 to July 1
 Central - March 15 to July 15
 South - March 1 to July 15
 Piedmont – Aug. 1 – Sept. 30
 Coastal Plain – Sept. 1 – Oct. 30.

3/ Seed should be covered **no more than** 1/4 inch deep at planting.

4/ When two grasses are used in mixture, reduce the seeding rate of each by 1/3. When more than two grasses are used in a mixture, reduce the seeding rate of each by 1/2.

5/ PLS - Pure Live Seed

6/ Eastern Gamagrass will only be planted as part of a mixture for wildlife habitat.

Table 4
NATIVE PERENNIAL FORBS AND LEGUMES SUITABLE FOR
ADDITION TO NATIVE GRASS SEEDING MIXTURES ^{1/}

Native Mixture	Seeding Rate	Remarks
Black-eyed Susan	2.0 lbs	Tolerant of a wide range of soils, but prefers a well-drained site with a pH level of 6.0-7.0. Needs full sun.
Butterfly weed	10.0 lbs	Requires a very well-drained sandy or gravelly soil in full sun. May take up to two years to become established from seed.
Coreopsis (perennial)	10.0 lbs	A drought tolerant perennial. Withstands a wide range of conditions but prefers rich, well-drained soil with a pH level of 5.5-7.0.
Illinois Bundleflower	5 .0 lbs	A warm-season legume. Prefers clay to clay loam soil with some overflow water. It also grows well on sandy loam soils. Needs pH level of 6.0 to 6.5.
Moss Verbena	6 .0 lbs	Drought tolerant. Prefers light to heavy soils that are well-drained with a pH level of 6.0-7.0 and in full sun.
Purple coneflower	12.0 lbs	Prefers full sun to partial shade and well-drained soil with a pH level of 5.5 -7.0; will tolerate poor, dry soil.
Partridge Pea	10.0 lbs	A warm season, reseeding, annual legume. Grows best on well drained soils although it survives well on alkaline clay soils also.

1/ Planting dates for the adapted areas are:

North - April 1 to July 1

Central - March 15 to July 15

South - March 1 to July 15

2/ When two species are used in mixture, reduce the seeding rate of each by 1/3. When more than two species are used in a mixture, reduce the seeding rate of each by 1/2.

3/ If utilized in strips that are not part of a grass seeding mixture, these may be planted at the individual rate or as part of a wildflower mixture and mixed as noted in footnote #2 above.

GEOGRAPHICAL AREAS FOR SPECIES ADAPTATION AND SEEDING DATES



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